

**KAKATIYA UNIVERSITY**  
Under Graduate Courses (Under CBCS 2019 - 2022)  
**B.Sc. ZOOLOGY I Year**  
**SEMESTER – II**

**ANIMAL DIVERSITY – VERTEBRATES**  
**(Core Paper – II)**

Theory	4 Hours/Week	4 Credit	Internal marks = 20
Practical	3 Hours/Week	1 Credit	External Marks = 80

**UNIT – I**

**1.1 Hemichordata**

- 1.1.1 General characters and Classification of Hemichordates upto classes with examples
- 1.1.2 *Balanoglossus*- Structure and affinities
- 1.1.3. Larval Significance (Tornaria)

**1.2. Protochordata**

- 1.2.1 General Characters and Classification of Chordates up to orders with examples
- 1.2.2 Salient features of Urochordata; Retrogressive metamorphosis in Urochordata
- 1.2.3 Salient features and affinities of Cephalochordata
- 1.2.4 General Characters of Cyclostomata; Comparison of *Petromyzon* and *Myxine*

**UNIT – II**

**2.1 Pisces**

- 2.1.1 General characters of and Classification of Pisces up to orders with examples
- 2.1.3 *Scoliodon*- Digestive, Respiratory, Circulatory and Nervous system
- 2.1.4 Types of Scales, Types of Fins
- 2.1.5 Migration in Fishes

**2.2 Amphibia**


- 2.2.1 General characters and Classification of Amphibians up to orders with examples.
- 2.2.2 *Rana tigrina*- Respiratory, Circulatory and Nervous systems
- 2.2.3 Parental care in Amphibians; Neoteny and Paedogenesis
- 2.2.4 Metamorphosis in Amphibians and its hormonal control

**Unit – III**

**3.1 Reptilia**

- 3.1.1 General characters and Classification of Reptilia up to orders with examples
- 3.1.2 *Calotes*- Digestive, Respiratory, Circulatory and Nervous systems
- 3.1.3 Temporal fossa in Reptiles and its evolutionary importance
- 3.1.4 Distinguished characters of Poisonous and Non-poisonous snakes

  
**Dr. G. SHAMITHA**  
Chairperson  
Board of Studies  
Department of Zoology & Sericulture Unit  
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### 3.2 Aves

- 3.2.1 General characters and Classification of Aves upto orders with examples.
- 3.2.2 *Columba livia*- Digestive, Respiratory, Circulatory and Nervous systems
- 3.2.3 Migration in Birds
- 3.2.4 Flight adaptation in Birds

### Unit – IV

#### 4.1 Mammalia

- 4.1.1 General characters and Classification of Mammalia upto orders with examples
- 4.1.2 *Rabbit*- Digestive, Respiratory, Circulatory and Nervous systems
- 4.1.3 Dentition in Mammals
- 4.1.4 Aquatic adaptations in Mammals

#### Suggested Readings:

1. **E.L. Jordan and P.S. Verma** 'Chordate Zoology' - S. Chand Publications.
2. **Mohan P. Arora**. 'Chordata – I, Himalaya Publishing House Pvt. Ltd.
3. **Marshal, Parker and Haswell** 'Text book of Vertebrates'. ELBS and McMillan, England.
4. **Alfred Sherwood Romer**. Thomas S. Pearson 'The Vertebrate Body, Sixth edition, CBS College Publishing, Saunders College Publishing
5. **George C. Kent, Robert K. Carr**. *Comparative Anatomy of the Vertebrates*, 9th ed. McGrawHill.
6. **Kenneth Kardong** *Vertebrates: Comparative Anatomy, Function and Evolution*, 4th ed, 'McGraw Hill.
7. **J.W. Young**, *The Life of Vertebrates*, 3rd ed, Oxford University press.
8. **Harvey Pough F, Christine M. Janis, B. Heiser**, *Vertebrate Life*, Pearson, 6th ed, Pearson Education Inc. 2002.

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**ANIMAL DIVERSITY - VERTEBRATES**  
**(PRACTICAL)**

**Instruction: 3 hrs per week**

**No. of Credits: 1**

**I. Study of museum slides / specimens / models (Classification of animals up to orders)**

1. **Hemichordata:** *Balanoglossus, Tornmaria larva*
2. **Protochordata:** *Amphioxus, Amphioxus T.S. through pharynx*
3. **Cyclostomata:** *Petromyzon, Myxine, Ammocoetus larva*
4. **Pisces:** *Sphyrna, Pristis, Torpedo, Channa, Pleuronectes, Hippocampus, Exocoetus, Echieneis, Labeo, Catla, Clarius, Auguilla, Protopterus, Scales: Placoid, Cycloid, Ctenoid*
5. **Amphibia:** *Ichthyophis, Amblystoma, Siren, Hyla, Rachophous, Bufo, Rana, Axolotal larva*
6. **Reptilia :** *Draco, Chamaeleon, Gecko, Uromastix, Vipera russeli, Naja, Bungarus, Enhydrina, Typhlops, Ptyas, Testudo, Trionyx, Crocodilus*
7. **Aves:** *Archaeopteryx, Passer, Psittacula, Bubo, Alcedo, Columba, Corvus, Pavo, Collection and study of different types of feathers: Quill, Contour, Filoplume, Down*
8. **Mammalia:** *Ornithorhynchus, Tachyglossus, Pteropus, Funambulus, Manis, Loris, Hedgehog;*
9. **Histology:** T.S. of Liver, Pancreas, Kidney, Stomach, Intestine, Lung, Artery, Vein, Bone T.S, Spinal Cord. T.S.

**II. Osteology:**

**Rabbit – Axial Skeleton** (Bones of Skull and Vertebral Column),

**Varanus, Pigeon and Rabbit - Appendicular skeleton** (Bones of Limbs and Girdles)

**III. Demonstration of dissection / dissected / virtual dissection: Labeo / Tilapia**

1. Digestive system 2. Brain, Weberian Oscicles 3. V, VII, IX, X cranial nerves

**IV. Laboratory Record work shall be submitted at the time of practical examination**

**V. An “Animal album”** containing photographs, cut outs, with appropriate write up about the above mentioned taxa. Different taxa/ topics may be given to different sets of students for this purpose.

**VI. Computer aided techniques should be adopted as per UGC guide lines.**

**Suggested manuals:**

1. S.S.Lal, Practical Zoology – Vertebrata

2. P.S.Verma, A manual of Practical Zoology– Chordata

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